

No More “*Methyl Something*” : Improving Management of Curriculum Chemicals in Schools

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Objectives...participants will

- Understand concerns about **chemical management of curriculum chemicals** in schools (e.g. science, art, vo-tech)
- Be able to **recognize** good chemical management
- Learn about **no-cost / low-cost strategies** to improve chemical management and security at their facility
- Learn about **available resources** to assist their school / district in improving their chemical management

Overview of Problem, Example 1

- **Spring 2005, Hamilton County, TN**
- **Unknown employees accidentally disposed lab chemicals in regular trash**
- **Fire.....**
- **Lab clean out and resulting fire and cleanup cost was ~\$80,000**

Overview of Problem, Example 2

- **Custodian entered a MS science storage area and became unconscious**
- **A teacher had spilled a solution of 37% formaldehyde in the room and failed to tell anyone**
- **Fortunately the custodian was rescued**

Where Are The Chemicals?

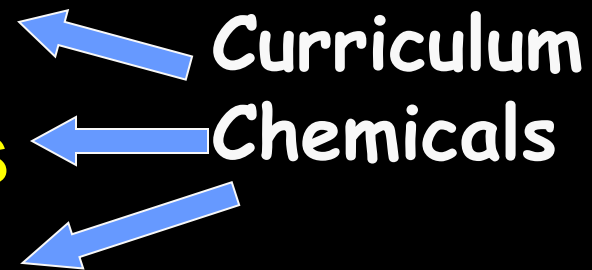
- Maintenance Areas

- Vocational Shops

- Science Laboratories

- Art Classrooms

- Offices



Why Be Concerned About Chemical Management?

- **Health hazards:** immediate & long-term
- **Safety hazards:** stability of shelves, storage methods and incompatibility
- **Environmental harm:** groundwater, discharges to streams/rivers, air pollution
- **Hidden costs/liabilities:** lawsuits, fines, Paperwork/fees, insurance premiums, etc

Types of Chemicals Posing Hazards in Schools

- **Extremely flammable**
- **Corrosive**
- **Poisonous**
- **Carcinogenic**
- **ANYTHING STORED IMPROPERLY**
- **Reactive: explosive, heat generating, fume/vapor generating**
- **Unknowns**
- **Anything accessible to students**

Examples : Poor Storage Practices

- **Water reactives near / under sink**
- **Heavy containers on high shelves**
- **Corrosives on (corroded) metal shelves**
- **Flammables stored on wood**
- **Alphabetical storage (incompatible?)**
- **Unlabelled/"mystery" contents**
- **Student access**
- **Chemicals next to food**

Stockpiling/Overpurchasing and Underestimating Hazards



Incompatible Chemical Storage



Poor Choice of Chemicals (high flammability material)

CHAMPION
PRODUCT

**CHEWING GUM
REMOVER**

Removes unsightly chewing gum and
candle wax droppings effectively and easily
with QUICK FREEZING ACTION

NET WT. 5.5 OZ. (156 g)

DANGER: EXTREMELY FLAMMABLE
CONTENTS UNDER PRESSURE
Read precautions on back of can.

HMIS HAZARD RATING
HAZARDOUS MATERIAL
IDENTIFICATION SYSTEM

HEALTH	1
FLAMMABILITY	4
REACTIVITY	1
PERSONAL PROTECTIVE EQUIPMENT	B (EYE & HAND PROTECTION)

This product contains: Isobutane (CAS# 75-28-5), Propane (CAS# 74-98-6)

CHASE PRODUCTS CO.
The Quality First Company
P.O. Box 70
Maywood, IL 60153


10228 35165

B-5165C CHEWING GUM REMOVER

Metal shelving deterioration



Dysfunctional Fume Hood

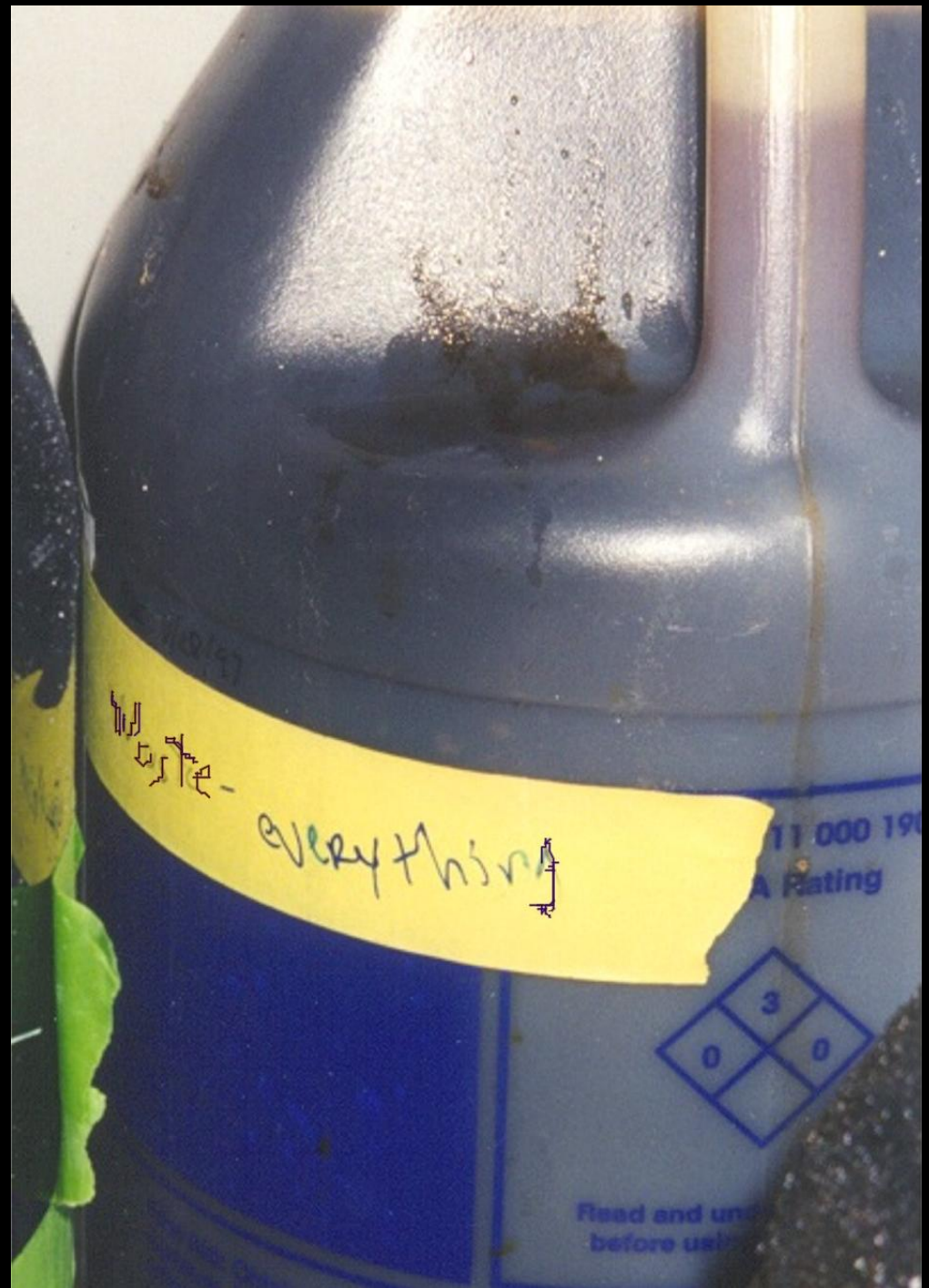


Special Case : Acutely Toxic



Imminent Risk Nitric Acid + Cyanide

What IS it????



Why are there problems with chemical management in schools?

- Lack of awareness
- Lack of environmental management system
- Lack of “somebody in charge” (*add-on duty*)
- Discount warehouse store effect
- Spend it or lose it monies

Why are there chemical management problems in schools? *(continued)*

- **Stockpiles from the 1950's – era of Sputnik and technology race**
- **Often little communication across Academic, Administrative, & Facilities departments; not working together on chemical management**
- **Facilities often not built for handling chemicals (ventilation, storage problems)**

You're Probably Already Convinced That the Situation Requires Action

- **Timeframe**
 - Short term
 - Longer term
- **Who should be doing this**
- **What actions should we be taking**

Short Term Actions

- Learn about chemical hazards
today's presentation is just the first step
- May be requirements at various levels
 - Federal (e.g. OSHA HazCom, Chem RTK)
 - State
 - Local (e.g. building or fire code)
 - District
- No-cost / low cost solutions

No-cost or Low-cost Solutions

- Smart Purchasing – BULK isn't Best
- Secondary Containment for Liquids
- Flammable & Acid Storage Cabinets
- NOT Storing Alphabetically
- No inventory – No MSDS
- Lips and Ridges
- Eye Wash Stations – Maintenance
- Signs / access
- Working across school (*e.g. chem teachers access to maintenance disposal contract*)

Short Term Actions

- **Build awareness in**
 - **Administration**
 - **Business Officials**
 - **Purchasing**
 - **Facilities / Maintenance**
- **Elements to build awareness of**
 - **Issue is important**
 - **It needs attention**
 - **It needs funding**

Short Term Actions

- **Work with professionals to identify hazards**
- **Get rid of the Stockpiles**
 - **Prescreen**
 - **Inventory**
 - **Remove chemicals**
 - **Hazardous**
 - **Outdated**
 - **No longer needed**

Examine your stock with an eye to the work you do...if you have enough to do the work for 100 years consider getting rid of 90 years worth!

Short Term Actions

- **For remaining inventory**
 - **Obtain and Maintain Material Safety Data Sheets (MSDSs)**
 - **Keep 1 set in lab, maintenance area**
 - **Keep 1 set in office**

Longer Term Goals

- **Develop a school-wide chemical management system**
 - **Purchase**
 - **Storage, including labeling**
 - **Use, including labeling**
 - **Disposal**
 - **Emergency Planning – spills, explosions, accidents**

Longer Term Goals

- **Use safer chemicals & less too**
 - **Order min quantities, consistent with use**
 - **Try to keep only 1 year's worth stock**
- **Regularly budget for removals (Cradle to grave)**
- **Address chemical issues in context with other environmental concerns**

Need To See “The Big Picture”

- Chemical **mismanagement** can affect
 - Safety
 - Health
 - Indoor Air Quality
 - Drinking Water Quality
 - Stormwater Quality
 - Security
 - and YOU!
- Environmental stewardship

What is a Chemical Management Program?

- 1. Long-term solution to chemical management problems**
- 2. Sustainable solution**
- 3. Should include**
 - one-time cleanout of outdated, accumulated chemicals**
 - long-term plan for managing chemicals**
 - implementation of prevention practices**

What is a Chemical Management Program?

- 4. Helps to ensure that the school is purchasing, storing, using, and disposing of its chemicals in a responsible manner**
- 5. Can be part of Chemical Hygiene Plan *(required for labs, even school labs)***

Key components of a chemical management program are to:

- Establish a chemical management plan
- Conduct periodic chemical inventories
- Plan and budget for chemical purchases, management and disposal
- Establish environmentally preferable purchasing practices (EPP)
- Encourage school staff to use the smallest amounts of the least hazardous chemicals
- Offer chemical management and safety training for school staff

Special Case : Mercury

- Schools should get rid of mercury
 - Bulk
 - Equipment
- Any Hg spill greater than 1 fever thermometer is a LARGE spill – **get help!**
- Any Hg spill greater than 2 TBS must be reported

Any time one pound or more of mercury is released to the environment, it is mandatory to call the [National Response Center \(NRC\)](#). The NRC hotline operates 24 hours a day, 7 days a week. Call (800) 424-8802. Note that because mercury is heavy, only two tablespoons of mercury weigh about one pound

In Cleaning Up Small Hg Spills

- **Never use**
 - **Broom**
 - **Vacuum cleaner**
- **Don't pour down drain**

<http://www.epa.gov/mercury/spills/index.htm>

Resources

- EPA's School Chemical Cleanout Campaign
www.epa.gov/sc3
- EPA's Healthy School Web Portal
www.epa.gov/schools
- EPA's Mercury Web Site
www.epa.gov/mercury

More Resources

- Chemical Management Resource Guide for School Administrators,
<http://www.epa.gov/oppt/pubs/chemmgmt/index.html>
- Environmental Compliance and Best Management Practices for K-12 Schools
<http://www.epa.gov/region02/children/k12/>

Still More Resources

- Material Safety Data Sheets
<http://hazard.com/msds/>
- Green Clean Illinois Schools (*Healthy Schools Campaign*),
<http://www.healthyschoolscampaign.org/programs/envhealth/gci/>
- Green Cleaning Pollution Prevention Calculator, <http://204.12.33.69/janitor/>